Policy Research

WORKING PAPERS

Transition and Macro-Adjustment

Country Economics Department
The World Bank
December 1992
WPS 1054

Distributional Impact of Cash and In-Kind Social Transfers in Eastern Europe and Russia

Branko Milanovic

During the transition to a market economy, cash social benefits in the formerly socialist countries must become more targeted as well as smaller in absolute amounts. The reforming socialist economies are likely to follow the corporatist earnings-linked model of continental Europe.

Policy Research

WORKING PAPERS

Transition and Macro-Adjustment

WPS 1054

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to study income distribution in formerly socialist countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sabah Moussa, room N11-017, extension 39019 (December 1992, 39 pages).

Milanovic empirically explores the distributional impact of social transfers in cash and in kind in Russia and Eastern Europe.

He shows that cash transfers, on the whole, are distributed almost uniformly (equally per capita) regardless of one's position in income distribution. By contrast, in market economies, absolute amounts of cash transfers decline as one moves up the income ladder.

The family allowance is the only type of cash transfer that is somewhat focused on the poor in the socialist economies. Family allowances are paid for children, and since larger households are typically poorer, some redistribution is achieved.

Education benefits are also slanted slightly toward the poor, primarily through the high share of public spending on primary education. As the level of schooling rises, the distribution of education benefits resembles more closely the distribution of income.

Health care benefits are distributed uniformly, per capita. In market economies, on the other hand, public health benefits are targeted more to the poor — primarily because the rich often opt out of publicly-run programs.

During the transition, cash benefits in the formerly socialist countries must become more targeted as well as smaller in absolute amounts. The reforming socialist economies are likely to follow the corporatist earnings-linked model of continental Europe.

Produced by the Policy Research Dissemination Center

Distributional Impact of Cash and In-Kind Social Transfers in Eastern Europe and Russia

Branko Milanovic
Transition and Macro-Adjustment Division
Country Economics Department

TABLE OF CONTENTS

Section 1. Targeting of Transfers when Definitions of Income and Rankings of Recipients Vary: The Four Rules	1
Section 2. Distributional Incidence of Cash Social Transfers	10
Section 3. Distributional Incidence of Social Transfers In Kind	19
Section 4. The World of Welfare Socialism	24
Section 5. Conclusions: Lessons for the Transition	26
Annex 1	30
Annex 2	35
References	37

LIST OF TABLES

Table 1. Illustration of Transfer Progressivity 2
Table 2. Progressivity of Social Transfers as a Function of Type of Recipient 8
Table 3. Progressivity of Social Transfers as a Function of Type of Income and Recipient 9
Table 4. Structure and Distribution of Social Transfers 11
Table 5. Pension as Percentage of Average State Sector Wage 12
Table 6. Concentration Coefficients of Cash Social Transfers 14
Table 7. Size of Family Allowances 15
Table 8. Social Assistance 18
Table 9. Size of Transfers in Kind 23
Table 10. Concentration Coefficients of Transfers in Kind 23
Table A1. Explicit (Paid-out) Consumer Subsidies 33

LIST OF FIGURES

Figure 1. Distribution of Income and Social Transfers 3
Figure 2. Relation between Household Size and Overall Income 6
Figure 3. Cash Transfers by Income Deciles 13
Figure 4. Family Allowances by Income Deciles 16
Figure 5. Public Education Benefits 21
Public Health Care Benefits 21
Figure 6. Size of Cash Transfers and Targeting 24

Section 1. Targeting of Transfers when Definitions of Income and Rankings of Recipients Vary: The Four Rules

When calculating inequality and distributional incidence of social transfers several methodological problems exist that often hinder comparisons. They can be divided into four groups: (1) concept of income used; (2) type of recipient; (3) the ranking criterion; (4) grouped or individual data. First, income distribution analyses often use various income concepts: original, gross, disposable income or even a variant of these. Second, the recipients vary: they are either households or persons. Third, the ranking criterion is different. In some studies, households are ranked by total household income; in others, households or persons are ranked by household per capita income; finally, some data show households or persons ranked by household equivalent income (where household income is adjusted for consumption needs of various household members). Fourth, data may be shown in such a form that recipients are grouped. Instead of individual data that pertain to several thousand households one may have only a dozen of data points. All income distribution statistics are then approximations. However, it can be shown that already with a dozen data points, the approximation is very accurate.[1] Moreover, the bounds within which the "true" values of different statistics lie can be calculated. The approximation error is therefore small and I shall not dwell on it any further.

The problems become compounded in the incidence analysis. This is because in the incidence analysis we focus on particular types of income (say, family allowances). While small variations in one of the three elements mentioned above need not vitiate comparisons of income distribution between the countries, they may strongly affect comparisons of transfer progressivity. While we know, from theory and empirical

---

[1] Davies and Shorrocks (1989, pp.101-2) show that with an "optimal" grouping the Gini coefficient calculated on the basis of only five income groups is equal to 95 percent of the value of the "true" Gini; with 12 groups the convergence is within 1 percent of true value. They conclude: "The error is negligible relative to the likely sampling and nonsampling errors in the 'true' Gini itself" (p.102). See also Jenkins (1988, p.71) who shows that the effect of reranking (violation of horizontal inequity) dominates the effect of grouping: "the effect of grouping is relatively minor, leading to differences in estimates of the Gini coefficient of at most 2%...The pure reranking effect is significantly larger however...The difference is of the order of 5-6%".

research, some relationships between "real" income inequality and inequality obtained when income or recipients are presented in a particular fashion, we ignore such relationships for individual income sources. For example, if income data for a country A are presented in the form $D(H|y_H)$, i.e. the distribution of households (H) by total income per household (y_H), and the data for country B in the form $D(p|y_p)$, i.e., the distribution of persons (p) by per capita household income (y_p), we can expect that, ceteris paribus, $I(H|y_H)>I(p|y_p)$, where I is an inequality measure. This occurs because household total income and household size are positively correlated. "Per capitalization" then moves both small and large households towards the middle of income distribution and reduces income dispersion. But when we find that the incidence of unemployment compensations is different in country A from that in country B, we lack *a priori* judgment whether it may be due to different forms in which the data are displayed or to some "real" differences. The purpose of this section is to see how different data presentations may affect calculations of transfer progressivity.

Table 1. ILLUSTRATION OF TRANSFER PROGRESSIVITY

Households	I	II	III	IV	V	Total income	Concentr/ Gini coef.
Original income	10	15	20	25	30	100	20.0 *
Social transfers	10	4	3	1	0	18	-51.1
Gross income	20	19	23	26	30	118	9.5 *
Taxes	0	1	4	4	5	14	40.0
Disposable income	20	18	19	22	25	104	6.1 *

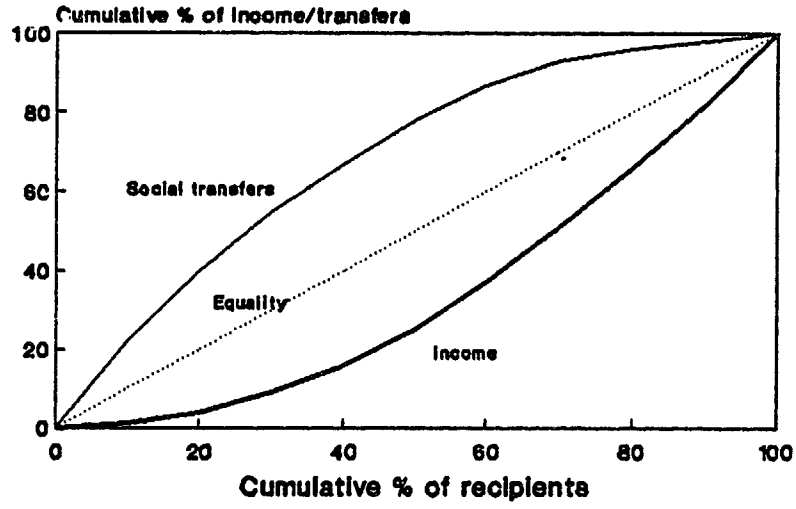
Note: * indicates the Gini coefficient.

Let us consider first the income concept used and suppose that all other problems are solved. We have five households ranked by original (market) income as shown in Table 1. The vector of social transfers is (10,4,3,1,0) and the concentration coefficient (C) is -51.1. Its negative value shows that transfers are negatively correlated with original income: the greater is the value of the coefficient in the absolute amount, the

better targeted are the transfers.[2] With a negative C the concentration curve of transfers lies above the 45° line (Figure 1).

Figure 1

Distribution of income and social transfers



The concentration coefficient of transfers (C) can be used as an indicator of transfer progressivity (P)[3] because, by definition, P=C-G where G=the Gini coefficient of overall income and G=given. Moreover, when we compare two countries, C is a better indicator of *targeting* of transfers than P because its value is independent of G. (In Figure 1, C is equal to twice the area between the concentration curve and 45° line; P is equal to twice the area between the concentration curve and the Lorenz curve.) Thus, in a very inegalitarian country transfers may appear fairly progressive even if they are less focused than in an egalitarian country. For example, equal per capita transfers in Brazil (C=0) would appear very progressive because its Gini coefficient is very high (say equal to 50):

---

[2] The concentration coefficient for a transfer s can be written as $C_s = 2\text{covar}(s, r_y)/\bar{s}N$ where $\bar{s}$ = mean amount of transfer, N = sample size, and $\text{covar}(s, r_y)$ = covariance between s and ranking of recipients according to total income.

[3] Progressivity compares the distribution of an income source (transfer) or a tax with the distribution of (say) gross income. In the case of taxation, when the share of taxes in gross income increases with an increase in income, we say that taxes are progressive. Conversely, for transfers, when the share of transfers in gross income *decreases* with the level of income, we say that transfers are progressive.

then P=0-50=-50. Much more focused transfers in Sweden (C=-20) would appear less progressive because Swedish G is low (say 20); then P=-20-20=-40. If we are interested in transfers' impact on inequality, there may be some justification in using P or Dalton's progressivity measure (the difference between the pre- and post-transfer inequality). If, however, we are interested, as here we are, in *targeting*, the concentration coefficient is to be preferred.[4]

Now, to return to our example, if we let households be ranked by their gross income, the vector of social transfers becomes (4,10,3,1,0). No longer does the poorest household receive the highest transfer. Concentration coefficient declines (in absolute amounts) and becomes -37.8. Transfers thus appear less targeted on the poor because the poor are now defined as those with low *gross* and not *original* income. If we go further and let households be ranked by disposable income, the vector of social transfers will look (4,3,10,1,0). The concentration coefficient of transfers becomes -12.5. The negative correlation between transfers and disposable income is even weaker. The reasons for this are clear. Poor households according to original income receive high transfers and pay little taxes. When measured in terms of dispcsable income, they thus overtake some households that started with higher original income. Our conclusion regarding the progressivity of transfers therefore depends on the underlying income concept used. This is the first rule:

> *(1) calculated progressivity of transfers will tend to decrease as we move from ranking the recipients according to original income to ranking the recipients according to gross and disposable income.*[5]

The problem that we just discussed emerges because of rank reversals (called also "horizontal inequity"). Generally, the greater the overall amount of transfers, the more likely are such rank reversals simply because large transfer flows cannot be so well calibrated that everybody's relative position remains unchanged. Small overall transfers can be focused on a few poor and will not produce rank reversals. Even if badly focused, they will not lead to numerous rank reversals because they affect

---

4 Note also that with the concentration coefficient issues of reranking that plague the calculations of redistribution do not appear.

5 For example, using British data for 1987, concentration coefficient is -34.5 when households are ranked according to original income, and -21.6 when they are ranked according to disposable income. Calculated from United Kingdom Central Statistical Office (1990, Appendix 4).

only few recipients.) If we fit the regression on the sample of ten capitalist economies[6], where horizontal inequity (HI) is the dependent variable, and size of transfers (SIZE) and their concentration coefficients (CONCENTRATION) are explanatory variables, we obtain a statistically significant positive value for the size and negative, although not statistically significant, value for the concentration (t-values are shown between brackets).[7]

$$HI = \underset{(5.43)}{0.333}\ SIZE - \underset{(0.40)}{0.011}\ CONCENTRATION \qquad (1)$$

$R^2 = 0.77$ SE = 2.08
DW = 2.18 F = 26.5

Our second rule is that:

(2) *horizontal inequity will tend to increase as the total amount of transfers increases. Consequently, rule (1) will be stronger in countries with large transfers.*[8]

Let us introduce a further complication and consider if progressivity of transfers is affected by the form of income in which recipients are ranked, i.e. whether by total household income, income per capita etc. Let transfers (T) be directly related to the number of non-active members of household (N1) and negatively related to household income per capita (y/N), where y = income[9] and N = household size. We can write this as:

$$T = aN1 - b(y/N)$$

If there is a positive and (for simplicity) proportional relation between N and N1, we can write:

$$T = a\,f(N) - b(y/N) = cN - b(y/N) \qquad (1)$$

where c, b>0.

We know that the relationship between total household income, y, and household size, N, is positive. There are two possibilities: household

---

6 These are Australia, Switzerland, France, West Germany, Norway, the Netherlands, the United States, Sweden, Canada and the UK. The data are for the period 1979-81. They are extracted from Mitchell (1991, p. 135).

7 The equation is fitted through the origin because with zero transfers or concentration there cannot be ranking-reversals.

8 Calculated targeting on the poor will decrease faster as we move from original to disposable income in Sweden than in Australia.

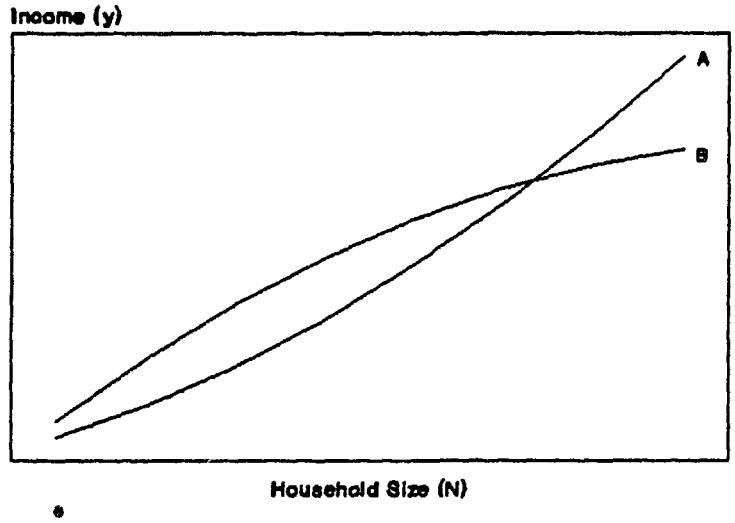
9 Any of the above income concepts. We keep income concept fixed.

size increases slower than income so that rankings of recipients according to total and per capita income coincide (the convex curve in Figure 2), or, household size increases faster than income so that ranking of recipients by per capita income are the reverse of the rankings according to total income (concave curve B in Figure 2). In both cases, the equation will be:

$$y = \alpha + \beta N + \gamma N^2 \qquad (2)$$

Figure 2

Relationship between Household Size and Overall Income



The relationship between total transfers T and total income y can now be written as:

$$T = cN - b(y/N) = c\,\Psi(y) - b(y/N) \qquad (3)$$

where $N=\Psi(y)$ is the reverse of equation (2). The slope of (3) is:

$$\frac{dT}{dy} = c\Psi'(y) - \frac{b}{N} = \frac{c}{\beta + 2\gamma N} - \frac{b}{N} \qquad (4)$$

where we make use of $dy/dN = \beta + 2\gamma N$.

The relationship between transfers per capita and income per capita is:

$$\frac{T}{N} = c - b\left(\frac{y}{N}\right)\frac{1}{N}$$

and the slope

$$\frac{d(T/N)}{d(y/N)} = \frac{-b}{N} < 0. \qquad (5)$$

Since the relationship between y and N is positive, then $dy/dN=\beta+2\gamma N>0$. Therefore expression (4) must be greater than (5). For a sufficiently large c, (4) may be even positive. This means that, while T/N must always decrease as income per capita (y/N) goes up, total T may decrease by less or even increase as total income increases. Targeting of transfers will therefore appear better when households are ranked by their per capita income (and transfers are shown in per capita terms) than when households are ranked by their overall income (and transfers are shown in total). Our third rule is:

(3) progressivity increases with per capitalization of income.

The conclusion crucially depends on the existence of a positive relation between overall household income and household size but not on its exact form (convexity or concavity).[10]

Uniform per capita transfers when plotted against income per capita imply, from (5), b=0. This situation is characteristic, as we shall see, for East European economies. It means that transfers are unrelated to per capita income levels.

Rule (3) enables us to make a tentative conclusion regarding the effect of equalization of income (adjustment to take into account different consumption needs of various household members). Per capitalization is an extreme form of equalization where each individual receives the same weight of 1. Since equalization is a milder form of per capitalization, equalization will increase the calculated progressivity of transfers by less.

Our findings are illustrated on a real world example calculated from the French data (Table 2).[11] The concept of income is always the same: original income. When households are ranked by their overall income, progressivity of social transfers ("ensemble des prestations publics") is only -14.4: they are barely larger in absolute amounts for poor households. When households are ranked by household equivalent income, progressivity is -52.9; when households are ranked by household per capita

---

[10] Convexity or concavity is reflected in the sign of γ. But in either case $\beta+2\gamma N$ must be positive.

[11] Calculations are based on Canceill (1989, Tables SI-13 to SI-17), for all employed and non-active population. The same conclusion can be made from Jarvis and Micklewright (1992, p.30) data reported for family allowances in Hungary.

income, progressivity is -59.9. Table 2 also shows that when *individuals*, instead of households, are ranked according to the *same* criterion, progressivity is reduced. This is due to the fact that with per capitalization, low income households are generally large households. When households rather than individuals are ranked by their per capita incomes, progressivity will appear very high because transfers are concentrated on relatively few households; when, on the contrary, individuals are ranked by their household per capita incomes, the large size of poor households "diffuses" the concentration of transfers (renders them less focused).[12] This is our fourth rule:

(4) distributions of the D(p|.) *type will yield lower progressivity than the distribution of the* D(H|.) *type.*

Table 2. PROGRESSIVITY OF SOCIAL TRANSFERS AS A FUNCTION OF TYPE OF RECIPIENT

	Households ranked D(H|.)	Persons ranked D(p|.)
Household total income	-14.41	n.a.
Equivalent income	-52.93	-44.80
Per capita income	-59.90	-48.20

The calculated progressivity or targeting of transfers will therefore be greater:

(a) if recipients are ranked by original than by gross or disposable income;
(b) if overall size of transfers is small;
(c) if recipients are ranked by their per capita rather than total household income;
(d) if recipients are defined to be households rather than persons.

In a two-way classification, shown in Table 3, progressivity of a

12 The importance of units used in the analysis of incidence of social transfers is underlined in Selden and Wasylenko (1992) who show that education benefits in Peru are less pro-poor when only children (ch) are ranked by their per capita family income, $D(ch|y_p)$, then when all persons are so ranked $D(p|y_p)$. Thus, if all individuals are ranked by their household per capita income, the concentration coefficient of primary education benefits is -12.7; if children only are included, the concentration coefficient falls to -0.6; for secondary education, the values are respectively 0.7 and 4.1 (calculated from Selden and Wasylenko (1990; Tables 3C and 4C, pages 24 and 31)).

given transfer will appear the greatest if distribution is of the form $D(H|y_p)$ and y=original income. As we move to the right and up from the MAXIMUM point, calculated progressivity decreases. It will be the smallest if $D(p|y_H)$ where y = disposable income.

Table 3. PROGRESSIVITY OF SOCIAL TRANSFERS AS A FUNCTION OF TYPE OF INCOME AND RECIPIENT

Income	Original	Gross	Disposable
Household total inc.			**MINIMUM**
Equivalent income	M		
Per capita income	**MAXIMUM**	X	X'

In the empirical analysis that follows we are understandably limited by the available data. In the calculation of progressivity, we shall attempt to use the data that are methodologically as identical as possible: most often, this would be the distribution of persons according to household per capita gross income, $D(p|y_p)$ (the point X in our classification). It will be explicitly indicated when other types of data are used. Our choice is determined by the type of data generated by East European statistical offices that normally rank households or persons according to gross per capita income.[13] Mitchell (1991), for example, using Luxembourg Income Study data, analyzes progressivity by looking how transfers are distributed when households are ranked according to original equivalent income (point M).

[13] It should be noted, however, that the East European gross income is somewhat different from the Western gross income. East European gross income is income after deduction of payroll taxes (deducted at source). Since payroll taxes account for quasi totality of direct taxes, East European gross income is fairly close to disposable income (point X' in Table 2). Only Hungary is an exception to this rule because its taxation system was already overhauled in 1989 in accordance with that existing in market economies.

Section 2. Distributional Incidence of Cash Social Transfers

Cash social transfers included in household surveys in five East European countries (Poland, Hungary, Czechoslovakia, former Yugoslavia, Bulgaria) and Russia are the following:

pensions (all pension schemes are state-provided),
various family allowances,[14]
sickness benefits,[15]
scholarships, and
other social transfers.

The magnitude of social transfers, in percent of household gross income, and their concentration coefficients are shown in Table 4.[16] The year of analysis for all countries is 1989 (except for Czechoslovakia and Yugoslavia 1988). All data for these countries, except when noted otherwise, are calculated from household surveys. The description of household surveys and the discussion of some methodological issues regarding the surveys are presented in Annex 1.

The size and distribution of social transfers are remarkably similar in three Central European countries (Poland, CSFR and Hungary) and Bulgaria. Yugoslavia and Russia are different. Social transfers in cash account for between 21 and 25 percent of household gross income[17] in

---

14 Exact types of family allowances vary slightly between the countries. Poland's surveys distinguish between universal family allowances (paid in respect of dependent child or spouse), child care benefits (paid if dependent child requires prolonged medical treatment), and maternity allowances (to compensate for earnings during the maternity leave). Czechoslovak surveys show the data on child care benefits and maternity allowances. Hungarian data include child care benefits and family allowances. Bulgarian data combine all family allowances. Russian data include maternity, social security allowance, and grants paid in respect of children. Finally, Yugoslav data include only family allowances (income tested).

15 In some countries (Poland and Bulgaria) sickness benefits are entirely borne by enterprises and thus are not shown as government (social) transfers.

16 A concentration coefficient shows the concentration (cumulative percentage received) of one variable, (e.g. pension), when recipients are ranked by amounts of a different variable (e.g. gross income). In the special case when the two variables coincide the concentration coefficient is equal to the Gini coefficient. For more details see Annex 2.

17 Gross income is equal to original income (wages plus net self-employment income plus property income plus other income before government redistribution) plus social cash transfers. Gross income is the

Central European countries and Bulgaria, and less than 15 percent in Russia and former Yugoslavia.

Table 4. STRUCTURE AND DISTRIBUTION OF SOCIAL TRANSFERS
(all households)

Percent of gross income	POL	YUGOc/	CSFR	HUN	BULG	RUS
Pensions	15.2	12.1	16.5	13.4	16.6	8.0
Family allowances	5.5	0.5	5.6	6.0	2.3	2.6
Sickness benefits		0.5	3.0	2.0		
Scholarships		0.2		0.2	2.3	0.3
Other social transfers	1.4	0.2	0.2	0.8		3.8
Total transfers	**22.1**	**13.5**	**25.4**	**22.4**	**21.2**	**14.6**
Concentration coefficients						
Pensions	-2.6	29.9	8.1	9.5	10.9	-19.6
Family allowances	-12.3	-19.9	-28.4	-21.9	-17.2	1.5
Sickness benefits		31.0	13.3	22.1		
Scholarships		50.1		9.3	5.3	19.8
Other social transfers	14.2	-24.6	-19.5	-11.7		12.1
Total transfers	**-3.9**	**37.1**	**0.3**	**1.4**	**7.2**	**-6.8**
(t-values)a/	(-2.4)*	(7.4)**	(0.2)	(1.5)	(1.8)	(-5.6)**
Gross income b/	**26.1**	**32.2**	**19.5**	**24.8**	**21.7**	**21.9**

a/ Standard errors of concentration coefficients for all transfers are calculated using the jackknife technique suggested by Sandstrom, Wretman and Walden (1988, p.116).

b/ Gross income (after payroll taxes) for all countries except Hungary where gross income before taxes, and Yugoslavia, gross revenues.

c/ Data for Yugoslavia from Vukotic-Cotic (1991).

Note: * = significant at 5 percent.
** = significant at 1 percent.

The share of pensions in household gross income is contained within an even narrowed range: between 12 percent in Yugoslavia and 16.5 percent in Hungary and Bulgaria. In Russia, the share of pensions is only 8 percent which is due to relatively low level of Russian pensions in comparison to other countries (Table 5). Low level of pensions is also responsible for Russia's good "targeting by default" of pensions. Because

central income concept that I use. Disposable income is equal to gross income minus direct personal taxes. Since direct personal taxes in all countries studied here except Hungary are negligible, there is little difference between gross and disposable income.

pensions are low and households that receive them have few other sources of income, pensioners in Russia are poor more often than in the East European countries. Consequently, pensions appear more targeted on the poor and their concentration coefficient is negative (-19.6) in Russia, while it is close to zero in Poland (-2.8), mildly positive in CSFR, Hungary and Bulgaria (between 8 and 11), and strongly positive in former Yugoslavia.

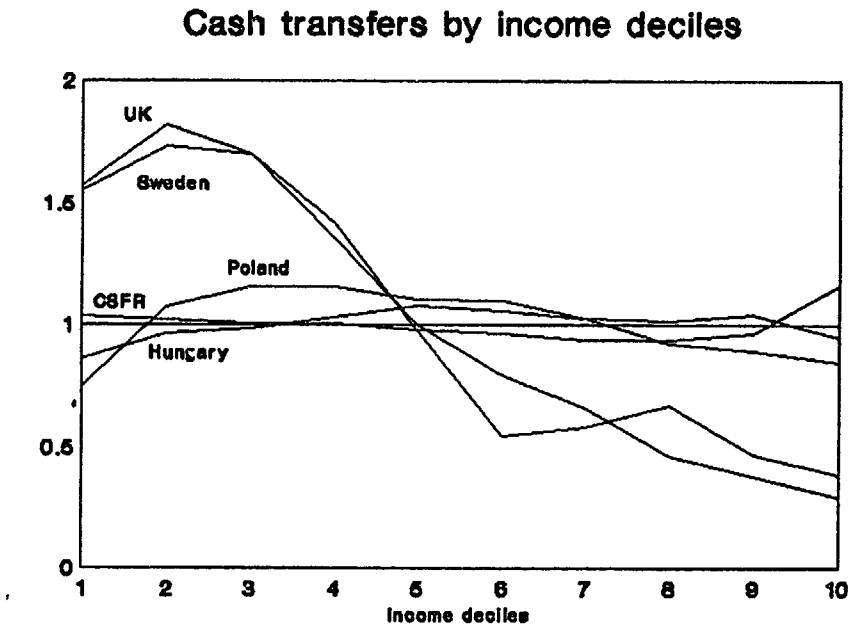
Table 5. PENSION AS PERCENTAGE OF AVERAGE STATE SECTOR WAGE

Yugoslavia (1988)	68.6
Hungary (1989)	66.9
CSFR (1988)	48.7
Bulgaria (1988)	47.3
Poland (1989)	45.4
Soviet Union (1988)	36.5

In Poland, CSFR, Hungary and Bulgaria, social transfers as a whole are distributed almost equally per capita. Concentration coefficients are very small and, with the exception of Poland, are not statistically significantly different from zero (Table 4). (A zero concentration coefficient indicates a complete per capita equality.) Practically flat distribution of social transfers across the population is in sharp contrast to the situation in market economies where cash transfers are focused on the poorer segments of the population (Figure 3).[18] The concentration coefficients of cash transfers in market economies in our sample (Table 6) range from -20 to -44.

[18] The increase in transfers between the first and the second decile in the UK and Sweden occurs because individuals in the second and third income decile receive most of the transfers in the form of relatively higher pensions while those in the lowest decile receive them as lower non-contributory benefits (welfare).

Figure 3



Sources: Sweden: calculated from Bishop, Formby and Thistle (1990, Table 3). United Kingdom: calculated from United Kingdom Central Statistical Office (1992, Table 4 Appendix 1, p.142). Poland and Hungary: Calculated from household surveys.
Year and ranking criteria: Sweden: 1981, ranking according to original income. UK: 1989, households ranked according to equivalent disposable income. Hungary: 1989, individuals ranked according to household per capita disposable income. Poland, 1989 and CSFR, 1988, individuals ranked according to household per capita gross income.

Flat line in Figure 3 means that transfers do not depend on income (b=0) but only on household size.

Among East European countries, former Yugoslavia is an exception because the distribution of social transfers approximates the distribution of gross income. This is due to "republicanization" of pension and social welfare funds, that is absence of a centralized welfare system. "Republicanization" made possible the existence of significant differences in average pension levels (reflecting differences in wages) between richer and poorer republics.

Table 6. CONCENTRATION COEFFICIENTS OF CASH SOCIAL TRANSFERS

Norway	-44.0
Germany	-35.9
Canada	-34.7
United States	-30.9
Israel	-23.6
Sweden	-19.8
United Kingdom	-19.7
Russia	-6.8
Poland	-4.5
Czechoslovakia	0.3
Hungary	1.4
Bulgaria	7.2
Yugoslavia	27.6
Chile	32.2

For all economies the ranking of individuals or households is done according to gross income; only for Hungary the ranking is done according to disposable income. Data for developed market economies are calculated from O'Higgins, Schmaus and Stephenson (1989, Table 4) and refer to the period 1979-82. Data for socialist economies are from the surveys. Since the data for market economies are of the form $D(H|y_H)$ while the data for socialist economies and Chile are of the form $D(p|y_p)$ transfers would appear somewhat less progressive in market economies (see Rule 3 above). The opposite effect is exerted by the fact that gross income in socialist economies is practically the same as disposable income (see Rule 1). Data for Chile include state-mandated pensions; they are for the year 1987 and are calculated from Haindl, Budinich and Irarrazaval (1989, Table 1.10-1.12, pp. 47-9).

For comparability purposes, I have used in Table 6 only such data for market economies where households are ranked according to gross income.[19] The more frequently available data, where households are ranked according

[19] Another problem that affects the comparison between socialist and market economies is the share of pensions that are state-provided or state-mandated in market economies. If most or all pensions are either paid out through the intermediation of the state (as in Germany, Sweden, Norway) the comparison is meaningful. If, however, a sizable portion of pensions is provided either by enterprise pension plans or is fully voluntary through individual saving, the comparison is biased. This is because pensions, due to their correlations with earnings, are always less progressive than other social transfers. The result is that social transfers as a whole appear less targeted in countries with large state pension plans. Among the market economies in Table 6, almost all pensions are state-administered or state-mandated in Sweden (94.3 percent of total pension expenditures), Norway (92.4 percent), Germany (89.0 percent) and the UK (88.4 percent). In the US and Canada, social security and public sector pensions account for respectively 79 and 62 percent of pensions (data for 1980; from Esping-Andersen, 1990, p. 85).

to original income, show, as explained in Section 1, greater progressivity of transfers.

Family allowances play a very important role in three Central European countries. They are, after pensions, the most important cash transfer with the share in gross income of 5 to 6 percent. This contrasts with an average share of 1-1.5 percent in West European market economies.[20] Because various family allowances in CSFR and Hungary are paid in respect to children or non-working spouse there is not much difference between workers' and farmers' households (Table 7). In Poland, family allowances are not paid to private farmers and the difference between them and workers is substantial. In the former Yugoslavia, family allowances were means tested (concentration coefficient equal to -20) and fairly small in size compared to other socialist countries (0.5 percent of household income).

Table 7. SIZE OF FAMILY ALLOWANCES
(in percentage of gross income)
individuals or households ranked by gross per capita income)

	POL 1989	CSFR 1988	HUN 1989	BULG 1989	RUS 1989	UK 1989	FRA 1984
Workers	7.2	5.4	6.3	2.5			
Farmers	0.5	6.4	7.4	1.2			
All households	5.5	5.6	6.0	2.3	2.6	1.6	3.2
(1) Concentration coeff. for gross income minus family allow.	26.7	22.4	27.8	22.1	22.4	35.9	36.7
(2) Gini coefficient for gross income a/	26.1	19.5	24.8	21.7	21.9	35.1	35.4
(2)-(1)	-0.6	-2.9	-3.0	-0.4	-0.5	-0.8	-1.3

a/ For Poland, CSFR, Bulgaria and Russia, gross income (after payroll taxes) but before a practically negligible personal income tax. For Hungary, UK and France, gross income before taxes.

Notes: Data for France are calculated from Canceill (1989). Data for the UK calculated from United Kingdom Central Statistical Office (1992, Table 4 Appendix 1, p.142). UK family allowances include non-contributory child benefits plus contributory statutory maternity allowance. For socialist countries, family allowances as defined in footnote 14 above.

French distribution is of the type $D(H|y_H)$ where y=gross income. UK distribution is of the type $D(H|y^e)$ where y^e=equivalent disposable income.

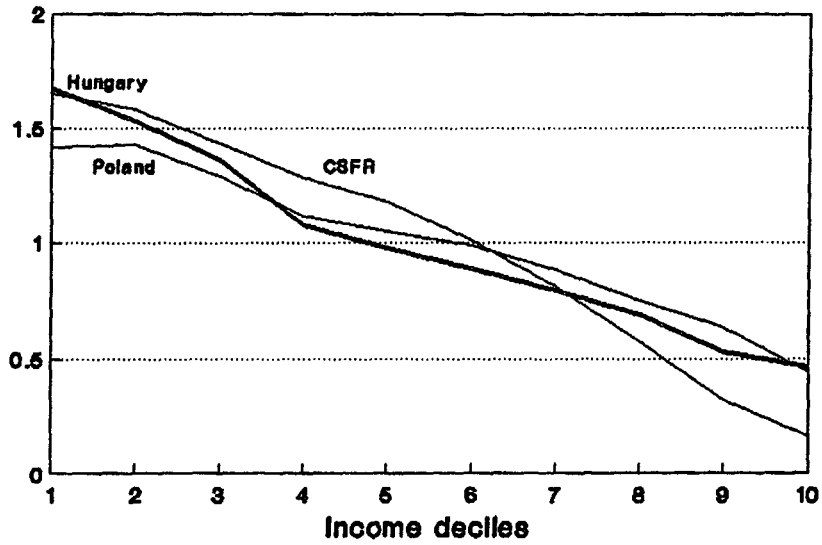
20 Calculated from O'Higgins, Schmaus and Stephenson (1989, p. 116).

Family allowances are strongly pro-poor in absolute terms in all countries except Russia (see Table 4). This means that poor households receive more of them not only in relative terms (i.e. as share of their income) but also in absolute amounts. The poorest households receive between 3 and 7 times more that the richest (Figure 4). Pro-poor family allowances, combined with pensions that have positive and low concentration coefficients, thus produce an almost flat per capita distribution for all cash transfers.

Family allowances are the only income source in East European countries that is both important and strongly focused on the poor. They achieve a significant reduction in inequality, lowering the overall Gini coefficient by approximately 3 percentage points in Hungary and CSFR, and about half a point in Bulgaria, Poland and Russia (Table 7). For comparison, they reduce income inequality by 1.3 percentage Gini points in France (where they are comparable in size to Central European countries) and by 0.8 points in the UK.

Figure 4

Family allowances by income decile



Workers households for Poland.
Equal per capita distribution=1.

Social assistance (including unemployment benefits) in socialist economies did not have the importance that it has in market economies, neither in its size nor concentration on identifying and helping the indigent. This was due to the nature of the economic system where social support was in-built at the enterprise level. If full employment is guaranteed, the minimum wage is sufficient to support a modest standard of living, family allowances are relatively high, high participation rates obtain, and pensions are linked to previous earnings, poverty can be only an accidental phenomenon and unemployment assistance does not exist. Such society can be dull (as indeed socialist societies were) because it eliminates the peaks as it eliminates the troughs but it guarantees a minimum income to everyone. An explicit state policy toward poverty was therefore not necessary and indeed it did not exist. Anti-poverty policy dealt only with "excess" cases of alcoholics, handicapped etc, and was either undertaken half-heartedly by local authorities or by charitable organizations (in countries where Church involvement, as in Poland, was politically accepted).

In Czechoslovakia and Hungary, social assistance accounts for less than 1 percent of household gross income; in Russia, it is negligible (although well targeted). The data for other countries are not available: a reflection of social assistance's small importance. By contrast, social assistance and unemployment benefits in the UK, France and Australia amount to between 1.3 and 3.2 percent of household gross income and are fairly well targeted (Table 8).

Table 8. SOCIAL ASSISTANCE
(in percentage of gross income;
individuals or households ranked by gross per capita income)

	CSFR 1988	HUN 1989	RUS 1989	UK 1989	FRA 1984	CHI 1987	AUS 1979
Size of social assistance							
All households	0.4	0.8	0.03	3.2	1.3	0.7	1.6
Concentration coefficients							
Unemployment benefits		-15.8		-21.3		-62.2	-39.4
Welfare			-70.3	-53.1		-54.9	-30.3
Employment programs						-49.8	
Other transfers	-19.5	-11.5		-36.6	-44.2		-26.3

Note: Definitions of social assistance. CSFR: other benefits. Hungary: unemployment benefits plus other benefits. Russia: allowance for the poor families with children. UK: all non-contributory benefits minus child benefits and housing benefits, plus unemployment compensations. Chile: unemployment compensation plus payments from state employment programs plus direct family allowance ("subsidio unico familiar"). France: other allowances. Australia: unemployment compensation plus sickness benefits plus family allowance plus other cash benefits (see Kakwani, 1986, Table 6.3, p.95).

Concentration coefficients. Australia: Calculated from Kakwani (1986, Tables 8.1 and 8.4).Welfare defined as the family allowance. Sources for the UK and France as given in Table 7; for Chile as given in Table 6.

French distribution is of the type $D(H|y_H)$ where y=gross income. UK distribution is of the type $D(H|y^e)$ where y^e=equivalent disposable income. All other distribution as $D(p|y_p)$ where y=gross income.

Chilean data show in addition that: (1) public employment programs through self-targeting, (2) welfare programs targeted on children less than 15 years of age and pregnant women or single mothers who are not eligible for family allowances paid to all employees, and (3) unemployment compensations, mostly focused on the young, achieve very good and similar results in terms of targeting (concentration coefficients between -50 and -62). It is noteworthy that none of the programs is based on explicit income or means testing.

Section 3. Distributional Incidence of Social Transfers In Kind

Tables 9 and 10 show the size and concentration coefficients for transfers in kind in Poland, former Yugoslavia, Hungary and Czechoslovakia. Imputed value of education benefits amount to approximately 7-8 percent of household gross income. More than 60 percent of these benefits are accrued at the kindergarten and primary school level. The degree of progressivity of benefits declines with the level of education. Most targeted are kindergarten benefits (concentration coefficient between -25 and -35 for Hungary and CSFR), then primary education (around -20). Secondary education benefits are markedly less focused on the poor: their concentration coefficients hover around 0, indicating practically flat distribution. Finally, university education benefits are positively correlated with level of income although they are still relatively pro-poor, that is, they are *less unequally* distributed than gross income (poor households receive more of them in relative although not in absolute amounts). The data for Poland and Hungary indicate, however, than only about 10 percent of all education benefits are received at the university level.[21] In consequence, total education benefits are pro-poor in absolute terms, more so in Czechoslovakia, Hungary and Yugoslavia than in Poland.

It is sometimes argued that the finding that education benefits become less progressive with the level of education simply captures the life-cycle effect, namely that young parents with relatively low income and still climbing up their earning curve have young children who go to kindergartens or primary schools (Birdsall and James, 1990, p. 37). As parents age, their income increases, reaching perhaps the peak at the time when children attend university. The life-cycle effect, however, applies equally to all studies of income inequality. Paglin (1975) tried to take it into account by deducting from the area under the standard Lorenz curve the area showing age-inequality (to account for the age-income profile).[22] Accounting for the life-cycle effect, however, makes sense only in cross-country comparisons when (1) one country (say, socialist) displays

---

[21] Since benefits are estimated on the basis of costs, it means that 10 percent of costs are incurred at that level.

[22] Paglin's approach was incorrect (see Danziger, Haveman and Smolensky 1977) although the idea is clear.

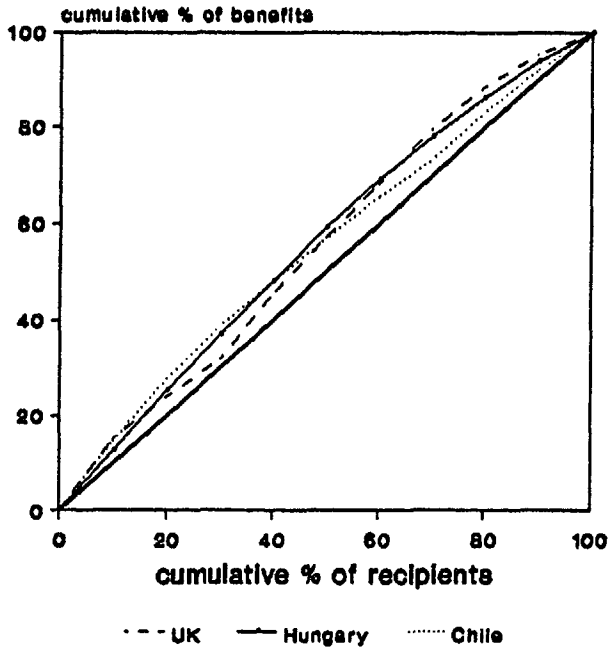
flat age-income profile and another (capitalist) a very steep one, or (2) two countries have vastly different demographic profiles. Conventional measures of inequality in case (1), based on yearly data, would be therefore biased in favor of a socialist country. When age-income profiles do not differ much, Paglin's approach is redundant, because our question is not, What is life-cycle ("true") inequality?, but, more modestly, What is the distribution of benefits between the poor and the rich at a given moment? Those who are now poor may later become rich and vice versa. The point is still that *today's* poor would be better-off *today* if they received more benefits.

Health care benefits are, except in Hungary, greater than education benefits. In Poland and CSFR, they amount to 12-13 percent of household income, almost 9 percent in former Yugoslavia, and 6 percent in Hungary. Health benefits are by and large distributed uniformly per capita: concentration coefficients in four countries are not much different from zero. No marked difference is detectable between various types of health benefits in countries where such break-up is available.

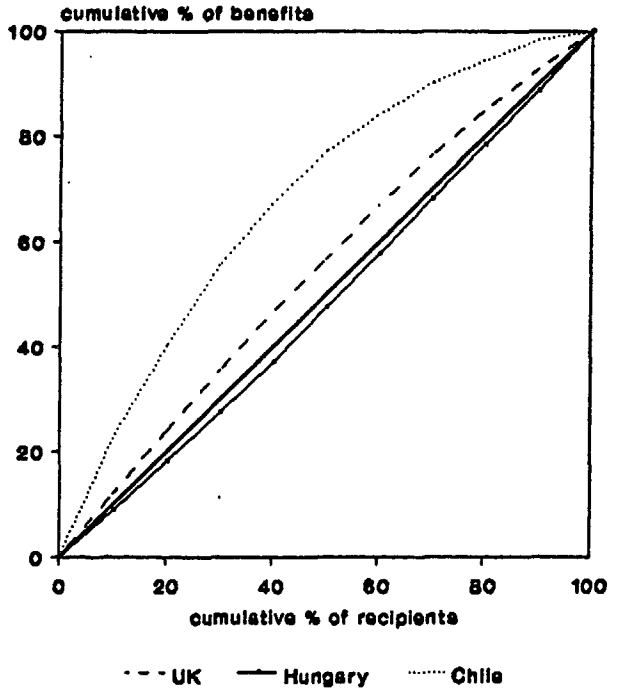
For comparison, I present the results for the UK and Chile (see also Figure 5). Targeting in the area of education is very similar to that in Eastern Europe. Education benefits overall are pro-poor in absolute terms, and their progressivity decreases with the level of education. Chile, however, differs from Eastern Europe in that the correlation between university benefits and level of income is much stronger: education benefits at that level are almost as skewed as income. This implies that relatively few students belong to the families that (at that point in time at least) are not well-off. Because private expenditures on education are not included, the size of education benefits expressed in relation to gross income is less in Chile and the UK than in Eastern Europe.

Figure 5

Public education benefits (all types of school and free meals)



Public health care benefits



As for health care benefits, the results for the UK and, particularly, Chile indicate much greater progressivity. This is due to the fact that public expenditures for health coexist with private, and that recipients of the former are disproportionately poor households. In socialist economies, where health is entirely socialized, benefits cannot, even in theory, be focused on the poor, or they can only to the extent that (1) the poor happen to fall sick more often, or (2) for longer periods, or from (3) diseases more expensive to cure. While it is not unreasonable to assume that at least one of the three elements does hold, it is also true that even in a fully socialized health service, the access of the poor to health care of a given quality will be more difficult than for the rich. This is because the rich can more easily bribe doctors or provide counter-favors. The practice is quite common in Eastern Europe. Elements (1)-(3) are therefore offset or overwhelmed by easier access for the rich. Even in theory health benefits are therefore unlikely to be focused on the poor in a fully socialized health system: an equal per capita distribution is the best that can be expected, and this is the result we obtain (for Poland and CSFR, the concentration coefficient is not statistically significantly different from zero).

Table 9. SIZE OF TRANSFERS IN KIND
(all households original income = 100)

	POL 1989	YU 1988	HUN 1989	CSFR 1988	UK 1989	CHI 1987
Education and health	**18.7**	**15.9**	**14.6**	**21.1**	**12.0**	**5.7**
Kindergartens			1.2	1.3		0.3
Primary	4.4		3.9	4.1		2.0
Secondary and vocational	1.8		2.0	3.1		0.8
University	0.8		1.1			1.0
Other training			0.3			
Education	**7.0**	**7.1**	**8.5**	**8.5**	**5.2**	**4.3**
Health: Medical consultations	1.9					
Health: Clinical	3.2		3.8			
Health: Others	6.6		2.2			
Health care	**11.7**	**8.8**	**6.0**	**12.6**	**6.8**	**1.4**

Sources: Topinska (1991), Vukotic-Cotic (1991), Kupa and Fajth (1990), Dlouhy (1991). Sources for the UK and Chile as given in Table 8; education expenditures include subsidized school meals.

Table 10. CONCENTRATION COEFFICIENTS OF TRANSFERS IN KIND

	POL 1989	YU 1988	HUN 1989	CSFR 1988	UK 1989	CHI 1987
Education and health	**-5.2**	**-11.4**	**-4.3**	**-5.2**	**-10.0**	**-16.3**
Kindergartens			-24.7	-34.3		-25.9
Primary	-12.6		-20.1	-21.3		-27.0
Secondary and vocational	1.7		-7.2	-0.4		-13.4
University	21.6		13.0			42.9
Other training			20.0			
Education	**-4.8**	**-22.0**	**-12.0**	**-15.7**	**-11.2**	**-10.0**
Health: Medical consultations	0.6					
Health: Clinical	-1.8		4.0			
Health: Others	-8.9		3.9			
Health care	**-5.4**	**-2.4**	**4.0**	**1.8**	**-9.0**	**-36.0**
(t-values)[a/]	(-2.2)	(-2.3)*	(3.7)**	(1.9)		
Gross income Gini	26.1	32.2	24.8	19.5	35.1	47.9

Sources: Topinska (1991, pp.29-31), Vukotic-Cotic (1991, p.11), Fajth and Kupa (1990), Dlouhy (1991, pp. 13-14). Sources for the UK and Chile as given in Table 8; education expenditures include subsidized school meals.

a/ Standard errors of concentration coefficients for all transfers are calculated using the jackknife technique suggested by Sandstrom, Wretman and Walden (1988, p.116).

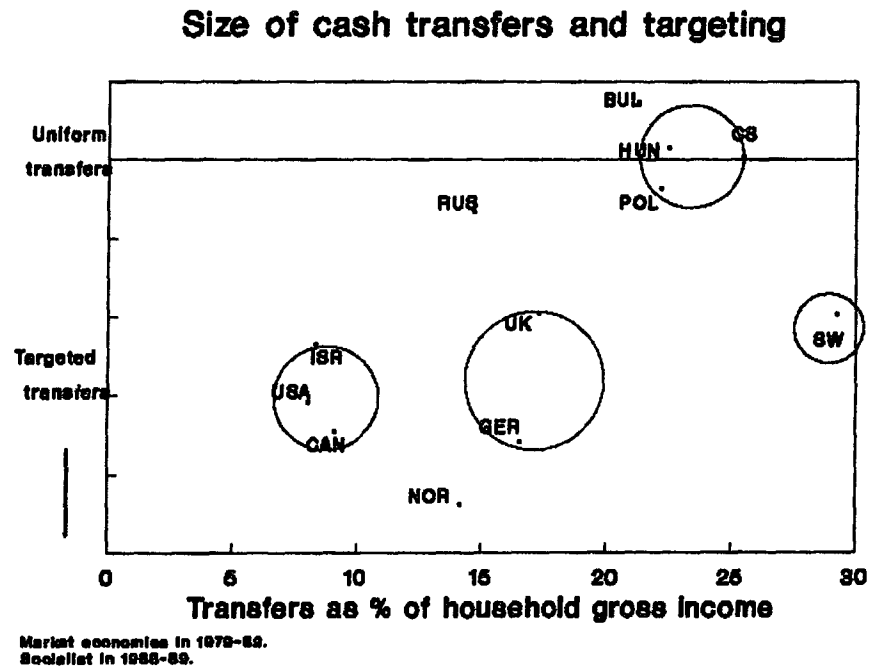
Note: * = significant at 5 percent.
** = significant at 1 percent.

Section 4. The World of Welfare Socialism

Social transfers in socialism are almost flat per capita. The system displays features that are different from what is found in market economies. Esping-Andersen (1990) defines three worlds (arche-types) of welfare capitalism. They are the liberal world of residual social welfare where transfers are limited and generally means-tested, the conservative and corporatist world of sizable yet mostly earning-related transfers, and the socio-democratic world of big social transfers where welfare is treated as a "universal right". In terms of countries, the liberal world is confined to Anglo-Saxon countries, Japan and Switzerland, the conservative world to continental Europe, and the social-democratic world to Scandinavia and the Netherlands.

Socialist welfare system differs from the three capitalist worlds in an almost total absence of transfer targeting. In terms of the size of transfers it stands between the conservative and social-democratic systems

Figure 6



Sources: See note to Table 6.

(Figure 6).[23] With the socio-democratic system it shares emphasis on universalism and reliance on state-run pensions and health insurance schemes.

Figure 5 broadly accords with Esping-Andersen's classification except for a rather unique position of the Swedish system whose key characteristics are not shared, as he argues, by Norway. US, Canada and Israel have very targeted systems. This is probably made necessary by relative parsimony of their systems. Britain and Sweden has the least targeted system among the market economies. The UK situation had somewhat changed by the late 1980s since the decrease in the size of transfers was accompanied by better targeting.[24]

Flat transfers preserve horizontal equity. If transfers are distributed equally per capita, income rankings of individuals or households ranked by their per capita income cannot be changed.[25] Ranking-reversals (called also leap-frogging) are a serious problem in Sweden where a large size of transfers results in shuffling the positions of income units before and after the transfers. Leap-frogging is excluded, or at least is minimized, when transfers are either flat, as in socialism, or when they are finely targeted and of limited size as in the residual

---

23 Social transfers expressed in terms of total household income are often greater in socialist than in market economies while the reverse is true when transfers are expressed in terms of GDP. Thus for the period of the 1980s, Rutkowska (1991) finds that cash social transfers in Poland, Hungary, Czechoslovakia, and Yugoslavia averaged about 10 percent of GDP vs. 12 percent for OECD as a whole and 15.8 for social welfare OECD countries. In terms of households income, the difference is less or is moreover in favor of socialist countries. This is due to the fact that households receive a smaller portion of GDP in socialism than in capitalism: for example, almost all of corporate saving and investment in socialism is not mediated through personal (household) income.

24 From Mitchell's data (Appendix C, p.221), in 1979 the concentration coefficient of cash transfers in the UK was -26.1; in 1987, the concentration coefficient was -34.5 (calculated from United Kingdom Central Statistical Office, 1990, Appendix 4, Table 1, p.117). In both cases, households are ranked according to original income. The size of transfers was 20.3 percent of gross income in 1979 and 14.3 percent in 1987.

25 This is in contrast to the hypothesis put forward by Okrasa (1988, p. 637), namely that "[r]edistribution of income through social transfers in Poland -and in the East- pays more attention to vertical equity across particular socio-economic groups than in the West, but at the same time it is less successful in meeting the objective of horizontal equity". The first part of the statement is correct but not the second.

welfare countries. With the amount of income redistributed in Sweden transfers would need, in order to avoid ranking-reversals, to be extremely well-targeted (paid only and only to the very poor) which means that the system would acquire liberal rather than socio-democratic features; or to be uniform per capita as in socialism; or to be so finely calibrated almost to the point of being adjusted for each individual which is clearly unfeasible. A recent study by Ankrom (1990, p.16), shows that horizontal inequity in Sweden is about three times as great as in the UK and the US, and 6 to 7 times as great as in Australia and Canada. Technical inability to preserve income rankings once the overall size of transfers is too big can therefore be an argument for limiting the size of the welfare state to some "natural" size compatible with rank preservation.[26]

Section 5. Conclusions: Lessons for the Transition

Social cash transfers in socialist economies in the years immediately preceding the collapse of socialism accounted for about a fifth of population gross income, a percentage comparable with that in developed welfare economies. They were generally unrelated to income levels and were paid in respect to demographic characteristics. To the extent that some of these characteristics were correlated with income (e.g. number of children is negatively correlated to per capita household income) some transfers like family allowances played a redistributional function. Overall, however, cash transfers were paid almost equally per capita. This is in marked contrast to the situation in market economies where transfers are much more focused on low-income households.

An important issue during the transition will be the relationship between income and wage distribution, on the one hand, and cash social transfers on the other. Currently, wages and cash transfers account for about 80 percent of household gross income. The distribution of both will change. Wages, are likely to become more unequal. To counteract an increase in income disparities, social transfers must become more focused on the poor.

The relationship between increased wage disparity and better provision of social support is not novel. During the transition from feudalism to capitalism, the labor market supplanted personalized and

---

[26] The assumption is, of course, that rank reversals are undesirable.

paternalistic relationships and weakened a number of social buffers (guilds, family). The transition to capitalism resulted in an increase in the number of the poor because many could not command sufficient wage in the labor market. This in turn necessitated that the state take the role of provider of the last resort. The situation in countries in transition from socialism to capitalism is similar. In socialism, social support was built into the system already at the enterprise level. Such a system where social protection was implicit is now being replaced by a market system where labor market plays the key role. Those who cannot earn sufficient wage must be supported by the state.

However paradoxical it may seem at first sight, the state in Eastern Europe is ill-prepared for this task. Although the role of the state was pervasive in socialism, the state had no experience in identifying the needy, and administering and delivering targeted support. Yet the state will have to take upon itself such a role if transition to a market system is to occur. The question is then, toward what world of welfare capitalism are East European countries likely to evolve.

The most probable evolution of Central European countries is, I think, toward the corporatist model of continental Europe. Countries of continental Europe have large social transfers; because transfers are often related to previous earnings they have rather limited redistributive role and follow more closely social insurance than social assistance principle. High trade union density and Catholic corporatism are also features of this model (see Esping-Andersen (1990)). It would seem that the three Central European countries and the new countries of Slovenia and, somewhat less, Croatia do fit into that mold. Neither the size nor the main principles of transfer determination would need to be altered significantly for Central European countries to resemble their capitalist neighbors.[27] Because transfers would derive from past earning records

---

[27] The position of Poland is more ambiguous. Strong Catholicism with the accent on the role of family as the main social buffer (rather than the state), and the overcoming of class divisions through corporatism seem to suggest that the Polish case might closely tally the rest of Catholic Europe (Austria is the best example). Recently, a liberal Polish social scientist Janusz Korwin-Mikke (1992) wrote that he fears the rise of "Christian socialism". The same view is echoed by Lash (1991, p. 106): "Any pervasive presence of confessional politics [in Poland], such as in Germany and Holland, makes it very difficult to pursue a neo-liberal route. A strong church usually makes for social cohesion and strong "social" element to any market economy." On the other hand,

(pensions) when most people were employed and wages were compressed, or be based on categorical characteristics (number of children), poverty may be the highest among those who fall between the cracks, e.g. new unemployed with little or no previous job history, low-wage single parent households, or, as in Poland, the rural poor who receive disproportionately few social transfers. The current system would therefore have to be complemented by the introduction of several more targeted transfers (unemployment benefits, some social assistance).

The evolution of the welfare systems in the more agricultural Balkan countries and the Slavic republics of the former Soviet Union is more difficult to predict. Some elements that characterize corporatist European systems are, however, present in these countries as well. Corporatism is closely related, according to Esping-Anderson, to etatism manifested (among other things) in a more exalted position enjoyed by civil servants. The number of distinct occupational pension schemes and the size of pension payments to former government employees are thus two key variables correlated with continental corporatism. Such features existed and still exist in the Balkans and Russia. There was historically a marked split between bureaucracy and the rest of the populace.[28] The best known example is Peter the Great's codification of the civil service positions (*chinovniki*) akin to the one found in the Army, and the linkage between the service to the state and the award of titles of nobility. The legacy of socialism has probably reinforced strong pro-etatist bias. Corporatism

---

Esping-Andersen (1990, p.30) in discussing the rise of the social-democratic welfare state in Sweden, puts the emphasis on the emergence of a "red-green" alliance between strong workers' trade unions and farmers. Such an alliance traded generous welfare system for workers with subsidies for farmers. An incipient alliance of that kind is in evidence in Poland. The alliance might tilt the system toward a more universalist stance, closer to the socio-democratic model.

28 "The Balkan official regards himself as immeasurably superior to the peasants, among whom he lives and from whose ranks he has sprung. To be an official is the fondest dream of every able young son of a peasant. The Balkan official does not like to work. He considers himself so fine a fellow that the state should be proud to support him for life and should not ask him to make efforts that tax his intellect or character...Outside [offices] stand, sit or squat patient queues of peasants awaiting their various permits and receipts. Foreigners and citizens with *protekcja* obtain swift and prompt attention, but the people can wait. They have waited many hundreds of years already for justice and a fe more hours will not make much difference." (Hugh Seton-Watson quoted in Polonsky, 1980, p.6).

is in evidence, for example, in present-day Greece where no less than 330 occupational pension schemes exist: government employees are generally privileged. An important difference between, on the one hand, the Central European countries, and, on the other, Balkan countries, Russia, Byelorussia and the Ukraine, resides in the latter group's lower ability to administer welfare schemes and deliver social support. An increase in poverty can then be expected with all the attendant effects on political stability. Transition in the Southern tier countries and the former Soviet Slavic republics will probably prove to be socially and politically a much more troubled process than in Central Europe.

ANNEX 1 - CHARACTERISTICS OF SURVEYS AND ADEQUACY OF DATA

Data sources

For our analysis we use household surveys data published by the central statistical offices of five countries. The publications used are the following. For Poland, the data are published in *Budzety Gospodarstw Domowych w' 1989 Roku*, Warsaw: Central Statistical Office, 1990. In our analysis we use the unpublished decile data supplied by the Central Statistical Office. For Yugoslavia, the data come from *Anketa o potrosnji domacinstava u 1988: Raspoloziva i upotrebljena sredstva: Proseci po clanu domacinstva,* Statistical Bulletin No. 1788, Belgrade: Federal Office of Statistics, 1989. For Czechoslovakia, the data are published in *Mikrocensus 1989: 1. dil*, Prague: Federal Statistical Office, 1990. Data for Hungary and Bulgaria were supplied by the countries' Central Statistical Office (CSO) on computer spreadsheets and are available from the author on request. The Russian data are taken from Popkin (1992). They are derived from Consumer Budget Survey for 1989 combined with one-million sample Survey of Incomes conducted by the Russian State Statistical Bureau.

Yugoslav, Polish and Bulgarian surveys are conducted annually. In 1988-89 they covered respectively 18650, 28285 and 2720 households (representing approximately 0.3, 0.25 and 0.09 percent of all households). Yugoslav and Polish surveys have been frequently used by the researchers. They are considered fairly representative and reliable even if not entirely free of problems. For example, the definition of income in the Yugoslav survey is incorrect since the concept used is more akin to revenues. In Poland, surveys cover about 90 percent of the population, leaving out non-agricultural private sector, Army and police personnel. Bulgarian and Russian surveys follows the so-called "branch principle" which means that households are selected at the place of work. This provides for a good check of wage data but biases the results since some household incomes are unreported (the survey relies only on recollections of one member of the household) and some groups are under represented (private sector workers). Also, pensioners households are not included as integral part of the survey but are added on as their data are derived from a special subsurvey of pensioners.

Czechoslovak survey is a periodic survey. The last survey prior to the one in 1988 was conducted in 1985. The 1988 survey includes about 1.9

percent of all households. Hungarian data originate from two separate sources. The first is the 1987 income survey done on about 22,000 households (0.55 percent of all households). Income surveys are conducted every five years. The second is the 1989 household budget survey. Budget surveys are done every two years on about 12,000 households. Hungarian CSO analysts hold that income surveys provide better income data while budget surveys are deemed more reliable for expenditures. Using micro-simulations, CSO updated earning/income figures from the 1987 income survey to obtain income estimates for 1989. CSO thus also accounted for the impact of personal income taxation introduced in 1988. A statistical reweighting was then undertaken to reconcile the updated income survey and the budget survey and produce a single set of data.

Ranking of Recipients

Polish and Hungarian data rank individuals into ten deciles according to respectively gross and disposable income per household member. Yugoslav, Bulgarian and Czechoslovak surveys rank households and, since the data on average household size are provided, also individuals into ten (Yugoslavia and Bulgaria) and twenty-five (CSFR) income groups according to gross income (revenue for Yugoslavia) per household member.

The Definition of Income

The problem of what constitutes income is, in addition to the usual reasons (e.g. treatment of capital gains, distinction between nominal and real return on assets etc), compounded because of (1) income earned in the second (underground) economy, (2) unsatisfactory design of the surveys which mix household income with revenues such as those derived from the sale of assets, and (3) exclusion of practically all implicit sources of income except for consumption in kind.

The first problem is satisfactorily dealt with only in Hungary. Other countries do not attempt to measure tips, "black incomes" or to account for possible underestimation of income by the households.

The second problem--bad design of the surveys--is present in Yugoslavia. Yugoslav survey, for example, includes as part of income personal borrowing, withdrawals from saving accounts, and revenues from lease or sale of property. The first two items are not part of income. The last item represents a mixture of reduction in the value of property and income (leasing). A related problem is lack of coverage of property incomes and, in particular, income from financial assets. Only the

Hungarian survey includes the latter. Other surveys provide information (withdrawals from saving accounts) which can, after making some assumptions about the relationship between the average stock of deposits, withdrawals, and interest received, be used to estimate the value of real interest received. However, since in 1988 and 1989 real interest rate on household deposits was negative or at best zero in all the countries it was not necessary to make the adjustment (even if strictly speaking income should be reduced when real interest is negative). None of the surveys attempts to measure net return on foreign exchange which, in the absence of other financial instruments, was often the most preferred hedge against inflation.

A more fundamental problem is suitability of using money income alone (adjusted or unadjusted for the illicit incomes) to measure inequality in conditions where there is rationing, subsidization and widespread payments in kind. To quote Bergson (1984, p. 1058) "(w)ith prices below clearing levels, money income ceases to be the sole determinant of capacity to acquire goods; to a degree, fortitude in searching out supplies and standing in queues, and plain luck, become consequential". Households receive implicit income from consumer subsidies (holding prices below equilibrium levels), below-market rents, negative interest rates charged on consumer loans, "collective consumption" (enterprise financed health care, cafeterias, vacations etc) or special, often in-kind, bonuses and premia. On the other hand, households' income was implicitly reduced through financial repression (payment of negative interest rates on saving deposits) and inflation tax on money.

Subsidies paid out by the state to cover the difference between costs of production and retail prices of consumer goods (inclusive of housing subsidies) give an indication of the size of of transfers. Because equilibrium prices of some of the subsidized products and services are greater than their costs of production (as is the case, for example, for housing or electricity where explicit subsidies cover only operating costs), explicit subsidies represent a lower limit of actual transfers.

As Table A1 shows, explicit subsidies ranged, in terms of GDP, between 6 and 7 percent and in terms of households' gross incomes amounted to twice that percentage. Only in Yugoslavia, explicit subsidies were negligible.

Table A1: EXPLICIT (PAID-OUT) CONSUMER SUBSIDIES a/

	In percent of GDP	In percent of household gross income
Poland (1989)	6.7	13.8
Hungary (1989)	6.7	12.4
Czechoslovakia (1988)	5.8	12.9
Bulgaria (1990)	3.2	n.a.

a/ Excludes agricultural subsidies to producers and subsidies to loss-makers.

Note: Poland: food, transport and housing subsidies. Hungary: consumer and housing loan subsidies (from OECD, 1991, Table 10, p.64). Czechoslovakia: negative turnover tax (consumer subsidies) plus subsidies for housing, residential heating and urban transport. Bulgaria: consumer subsidies for "essential" products (from World Bank 1991a, p.38).

The pervasiveness of the system--subsidized vacations for workers, special shops stocked with unavailable consumer durables for miners, etc--does not allow one to assert, as it is sometimes done, that inclusion of implicit incomes would necessarily increase income disparity.[29] On the contrary, there is strong evidence that consumer subsidies, easily the largest chunk of implicit income, have an opposite effect which is likely to offset that of the nomenklatura perks.

Using estimates by Matthews (1978) and various data on the nomenklatura perks in Poland, Morrisson (1984) estimates an alternative income distribution in Eastern Europe which includes the monetized value of fringe benefits appropriated by the nomenklatura. Morrisson's results (1984, Table 2) suggest that the Gini coefficient increases by 3 to 4 Gini points. On the other hand, consumer subsidies are income-equalizers and due to their size exert a significant impact on income distribution. It was calculated for Poland in 1987 that that inclusion of consumer subsidies reduces income inequality, measured by the Gini coefficient, from 21.8 to 20.0. Kupa and Fajth (1990, p.37) similarly calculate for

[29] An exaggerated perception of the nomenklatura fringe benefits is common in Eastern Europe. It is due to often secretive nature in which these benefits were distributed. This has led people to ascribe them greater importance than they really had.

Hungary that the Gini coefficient is reduced from 23.1 (for disposable income) to 22.0 (for disposable income plus subsidies). Finally, for CSFR some preliminary evidence points to the same conclusion: negative turnover tax (a type of consumer subsidy) represents 7.1 percent of households' expenditures in the lowest and 4.4 percent in the highest income decile (World Bank, 1991, p.59). On the basis of household expenditure surveys, Vecernik (1991, p.17) calculates that lowest quartile of households received per capita 7.5 percent more food subsidies than the average while the top quartile received 6.1 percent less than the average.[30] Similar results were obtained for Algeria (Stanovnik, 1991, p. 41).

The inclusion of consumer subsidies on top of the nomenklatura in-kind benefits would probably bring the Gini coefficient close to its "money incomes only" value. It can be thus argued that the use money income yields an accurate picture of income inequality even in socialist economies. Moreover as far as international comparisons are concerned, similar adjustments for in-kind benefits could easily increase the measured inequality in market economies. In some countries (e.g. Japan) fringe benefits of upper management often exceed their salaries while the offsetting effects (on income distribution) of consumer subsidies are negligible.[31]

---

30 The implicit assumption is that households with different incomes pay the same average price for the subsidized good. In other words, if they do not buy the entire quantity at the subsidized price, the percentages of consumption at subsidized and free-market price are independent of the level of income.

31 Note that social transfers to the poor are largely monetized and already included in the money income.

ANNEX 2: THE DEFINITION OF CONCEPTS USED

The concentration coefficient C is a synthetic indicator showing the concentration of an income source *x* when recipients are ranked by amounts of *y* (say, disposable income). Graphically, when cumulative percentage of recipients (ranked according to *y*) are shown on the abscissa, and cumulative percentages of *x* are shown on the ordinate, the line that connects the two is called the concentration curve. The concentration coefficient is equal to twice the area that lies between the concentration curve and the 45^{o} line (line of equality). The concentration curve can lie below (above) the line of equality. In the special case when *x*=*y*, the concentration coefficient is equal to the Gini coefficient, and the concentration curve is called the Lorenz curve.

There are many formulas for the calculation of the concentration (Gini) coefficients. When the data are grouped (presented as the averages for different income groups which is a normal practice in statistical publications) a lower and upper bound of the concentration (Gini) coefficient can be calculated. The lower bound is calculated on the assumption that all recipients within an income group have the same amount of *x* or *y* (as the case may be). The formula is:

$$C = 1 - \sum_{t=1}^{n} f_t \, (q_t + q_{t-1}) \qquad \text{(A1)}$$

where f_t=proportion of recipients in income group *t*, q_t=cumulative proportion of income source *x* received by people in income groups 0 to *t*, and n = total number of income groups.

The coefficient calculated by (A1) is an approximation, based on the grouped data, of the sample concentration coefficient.

The concentration coefficient ranges from -1 when all (say) transfers are received by the poorest individual through 0 when all individuals receive the same amount of transfer income, to +1 when all transfers are received by the richest individual. When the concentration coefficient is 0, it coincides with the 45^{o} line. When it lies above the line of equality it is negative; when it lies below the line of equality, it is positive. The Gini coefficient ranges from 0 to +1.

If total disposable income (y) is equal to the sum of different income sources (x_i) $y = \sum_{i=1}^{s} x_i$ and recipients are ranked according to the disposable income then the the Gini coefficient (G_y) is equal to the weighted sum of concentration coefficients of income sources where weights (w_i) are shares of income sources in disposable income:

$$G_y = \sum_{i=1}^{s} w_i C_i. \qquad \text{(A2)}$$

where s = total number of income sources.

Similarly, the weighted sum of concentration coefficients of income sources of *original* income will be equal to the *concentration coefficient* of the original income (C_o):

$$C_o = \sum_{i=1}^{s'} w_i C_i \qquad \text{(A3)}$$

where s' = total number of income sources in original income.

All concentration and Gini coefficients in the paper are multiplied by 100.

REFERENCES

Ankrom, Jeff (1990), *Two Refinements in the Measurement of Income Redistribution*, Luxembourg Income Study Working Paper No. 41.

Bergson, Abram (1984), "Inequality under Soviet Socialism", *Journal of Economic Literature*, September, pp. 1052-1099.

Birdsall, Nancy and Estelle James (1990), "Efficiency and Equity in Social Spending: How and Why Governments Misbehave", A paper prepared for the World Bank conference on poverty, Airlie House, Virginia, October 1989.

Bishop, John, John Formby and Paul D. Thistle (1990), *International Comparison of Taxc and Transfer Progresssivity: New Evidence from the Luxembourg Income Study*, Luxembourg Income Study Working Paper No. 52.

Canceill, Genevieve (1989), "Les Revenus Fiscaux des Menages en 1984", Les Collections de l'INSEE, Paris.

Danzinger, Sheldon, Robert H. Haveman and Eugene Smolensky (1977), "The Measurement and Trend of Inequality: Comment", *American Economic Review*, June, pp. 505-512.

Davies, James B. and A.F. Shorrocks (1989), "Optimal Grouping of Income and Wealth Data", *Journal of Econometrics*, 42(1), pp. 97-108.

Dlouhy, Jiri (1991), "The Impact of Social Transfers on Income Distribution in the Czech and Slovak Federal Republic", Research Project Social Expenditures and their Distributional Impact in Easter Europe, Paper Number 4, Washington, D.C.: Socialist Economies Reform Unit, World Bank.

Esping-Andersen, Gosta (1990), *The Three Worlds of Welfare Capitalism*, Cambridge, U.K.:Polity.

Haindl Erik R., Ema Budinich and Ignacio Irarrazaval (1989), *Gasto Social Efectivo*, Santiago de Chile: Oficina de Planificacion Nacional and Universidad de Chile Facultad de Ciencias Economicas y Administrativas.

Jarvis, Sarah J. and John Micklewright (1992), "The Targeting of Family Allowance in Hungary", Paper presented at the World Bank conference on Public Expenditures and the Poor held in Washington, June 17-19, 1992.

Jenkins, Stephen (1988), "Reranking and the Analysis of Income Redistribution", *Scottish Journal of Political Economy*, 35(1), February, pp. 65-76.

Kakwani, Nanak (1986), *Analyzing Income Redistribution Policies: A Study Using Australian Data*, Cambridge: Cambridge University Press.

Korwin-Mikke, Janusz (1992), *Zycie Gospodarcze*, January 6, p.14.

Kupa, Mihaly and Gaspar Fajth (1990), "Hungarian Social Policy Systems and Distribution of Incomes of Households", mimeo, Budapest.

Matthews, Marvyn (1978), *Privilege in the Soviet Union*, London: Allen and Unwin.

Mitchell, Deborah (1991), *Income Transfers in Ten Welfare States*, Aldershot, Brookfield USA: Avebery.

Morrisson, Christian (1984), "Income Distribution in East European and Western Countries", *Journal of Comparative Economics*, pp.121-138.

OECD (1991), *Hungary 1991*, OECD Economic Surveys, Paris: OECD.

O'Higgins, Michael, Guenther Schmaus and Geoffrey Stephenson (1989), "Income Distribution and Redistribution: A Microdata Analysis for Seven Countries", *Review of Income and Wealth*, 1989, p. 107.

Okrasa, Wlodimierz (1988), "Redistribution and the Two Dimensions of Inequality: An East-West Comparison", *European Economic Review*, pp. 633-643.

Paglin, Morton (1975), "The Measurement and Trend of Inequality: A Basic Revision", *American Economic Review*, 65 (4), pp. 598-609.

Polonsky, Antony (1980), *The Little Dictators: The History of Eastern Europe since 1918*, London, Boston and Henley: Routledge and Kegan Paul.

Popkin, Barry M. (1992), "Poverty in the Russian Federation: Demographics and Coverage by Current Support Systems", mimeo, January 29.

Rutkowska, Izabela (1991), "Public Transfers in Socialist and Market Economies", Research Project Social Expenditures and their Distributional Impact in Eastern Europe, Paper Number 7, Washington, D.C.: Socialist Economies Reform Unit, World Bank.

Sandstrom, Arne, Jan H. Wretman and Bertil Walden (1988), "Variance Estimators of the Gini Coefficients--Probability Sampling", *Journal of Business and Economic Statistics*, January, pp. 113-119.

Selden, Thomas M. and Michael J. Wasylenko (1992), "Measuring the Distributional Effects of Public Education in Peru", Paper presented at the World Bank conference on Public Expenditures and the Poor held in Washington, June 17-19, 1992.

Stanovnik, Tine (1991), "Consumer Subsidization in Algeria", Ljubljana: Institut za ekonomska raziskovanja.

Topinska, Irena (1991), "The Impact of Social Transfers on Income Distribution: Poland, 1989", Research Project Social Expenditures and their Distributional Impact in Eastern Europe, Paper Number 2, Washington, D.C.: Socialist Economies Reform Unit, World Bank.

United Kingdom Central Statistical Office (1990), "The Effects of Taxes and Benefits on Household Income, 1987", *Economic Trends*, London: H.M. Central Statistical Office, No. 439, May, po. 84-118.

United Kingdom Central Statistical Office (1992), "The Effects of Taxes and Benefits on Household Income, 1989", *Economic Trends*, London: H.M.

Central Statistical Office. No. 459. January, pp. 127-165.

Vecernik, Jiri (1991), "Income Distribution in Czechoslovakia", *BIRC Bulletin*, p.14.

Vukotic-Cotic, Gordana (1991), "Social Transfers and Income Inequality in the Ante-Bellum Yugoslavia, 1988", Research Project Social Expenditures and their Distributional Impact in Eastern Europe, Paper Number 6, Washington, D.C.: Socialist Economies Reform Unit, World Bank.

World Bank (1991), *Czechoslovakia: Transition to a Market Economy*, A World Bank Country Study, Washington, D.C.: World Bank.

World Bank (1991a), *Bulgaria: Crisis and Transition to a Market Economy*, volume 1, Washington, D.C.: The World Bank.

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS1033	Latin America and the Caribbean Region (and Northern America) Population Projections, 1992-93 Edition	My T. Vu Eduard Bos Ann Levin	November 1992	O. Nadora 31091
WPS1034	Revising Financial Sector Policy in Transitional Socialist Economies: Will Universal Banks Prove Viable?	David H. Scott	November 1992	K. Waelti 37664
WPS1035	How Import Protection Affects the Philippines' Motor Vehicle Industry	Wendy E. Takacs	November 1992	D. Ballantyne 37947
WPS1036	Output Decline in Hungary and Poland in 1990-91: Structural Change and Aggregate Shocks	Simon Commander Fabrizio Coricelli	November 1992	O. del Cid 35195
WPS1037	Vocational Secondary Schooling, Occupational Choice, and Earnings in Brazil	Ana-Maria Arriagada Adrian Ziderman	November 1992	C. Cristobal 33640
WPS1038	Determinants of Expatriate Workers' Remittances in North Africa and Europe	Ibrahim A. Elbadawi Robert de Rezende Rocha	November 1992	A. Marañon 31450
WPS1039	Education, Externalities, Fertility, and Economic Growth	Martin Weale	November 1992	PHREE 33680
WPS1040	Lessons of Trade Liberalization in Latin America for Economies in Transition	Jaime de Melo Sumana Dhar	November 1992	D. Ballantyne 37947
WPS1041	Family Planning Success Stories in Bangladesh and India	Moni Nag	November 1992	O. Nadora 31091
WPS1042	Family Planning Success in Two Cities in Zaire	Jane T. Bertrand Judith E. Brown	November 1992	O. Nadora 31091
WPS1043	Deriving Developing Country Repayment Capacity from the Market Prices of Sovereign Debt	Stijn Claessens George Pennacchi	November 1992	R. Vo 33722
WPS1044	Hospital Cost Functions for Developing Countries	Adam Wagstaff Howard Barnum	November 1992	O. Nadora 31091
WPS1045	Social Gains from Female Education: A Cross-National Study	Kalanidhi Subbarao Laura Raney	November 1992	M. Abundo 36820
WPS1046	World Bank Project-Financed Research on Population, Health, and Nutrition	J. Price Gittinger Carol Bradford	November 1992	O. Nadora 31091

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS1047	Côte d'Ivoire: Private Sector Dynamics and Constraints	Enrique Rueda-Sabater Andrew Stone	November 1992	P. Infante 37642
WPS1048	Targets and Indicators in World Bank Population Projects	George Baldwin	November 1992	O. Nadora 31091
WPS1049	Money Demand and Seignorage-Maximizing Inflation	William Easterly Paolo Mauro Klaus Schmidt-Hebbel	November 1992	R. Martin 31448
WPS1050	Marginal Income Tax Rates and Economic Growth in Developing Countries	William Easterly Sergio Rebelo	November 1992	R. Martin 31448
WPS1051	The Legal Framework for Private Sector Activity in the Czech and Slovak Federal Republic	Cheryl W. Gray	November 1992	M. Berg 36969
WPS1052	A Reappraisal of How Oral Rehydration Therapy Affected Mortality in Egypt	Hoda Rashad	November 1992	O. Nadora 31091
WPS1053	Development of the Zimbabwe Family Planning Program	Alex F. Zinanga	December 1992	O. Nadora 31091
WPS1054	Distributional Impact of Cash and In-Kind Social Transfers in Eastern Europe and Russia	Branko Milanovic	December 1992	S. Moussa 39019